

REMARKSClaim Rejections – 35 U.S.C. §103(a)

Claims 1-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kittrell et al. (US 5,304,173) in view of Wong et al. (US 5,038,039). Applicant respectfully disagrees with Examiner's contentions.

For a §103 obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. MPEP 2143.

Claim 1

Claim 1 recites a system for analysis of an in vivo biological sample, comprising "... an unclad interchangeable fiberoptic probe associated with said optical fiber and configured to direct radiation from said radiation source to said in vivo biological sample, wherein said fiberoptic probe is configured to be in direct contact with said in vivo biological sample"

Neither Kittrell nor Wong discloses an unclad fiberoptic probe, as recited in Claim 1, wherein the probe is configured to be in direct contact with an in vivo biological sample.

Kittrell teaches the use of an additional ending "optical shield 12." (Col. 7, lines 51-54). This optical shield, not the fiberoptic probe, "is brought into contact with the plaque." (Col. 4, lines 50-52).

Wong not only fails to disclose an unclad fiberoptic probe as recited in Claim 1, but fails to mention the use of any fiberoptic probe at all.

Since neither Kittrell nor Wong individually teach the unclad fiberoptic probe as recited in Claim 1, they cannot teach this limitation in combination.

The system of Claim 1 also comprises “a middle infrared radiation source configured to provide radiation in a spectral range of about 2.5 microns to about 20 microns; an optical fiber operatively coupled to said middle infrared radiation source, said optical fiber being substantially transparent in said spectral range of about 2.5 microns to about 20 microns ... and a Fourier transform infrared spectrophotometer operatively coupled to said detector and configured to detect radiation in said spectral range of about 2.5 microns to about 20 microns.

Kittrell fails to disclose a middle infrared radiation source, an optical fiber or a Fourier transform infrared spectrophotometer operating in the spectral range of about 2.5 microns to about 20 microns, as recited in Claim 1. Kittrell is directed towards a fluorescence spectral system for locating and removing plaque. As would be appreciated by one ordinarily skilled in the art, a fluorescence spectral system is completely different from the system based on infrared radiation as recited in Claim 1.

Examiner asserts that it would have been obvious to have modify Kittrell such that it uses ATR-FTIR in the claimed mid-infrared range for spectral analysis as disclosed in Wong. Examiner argues that it would have merely involved the substitution of one well known type of spectral analysis of biological tissue for another.

If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143.01.

Kittrell is directed towards the location and removal of plaque from the arterial wall. It relies on a fluorescence diagnostic in order to “distinguish fibrous plaque from healthy arterial wall.” (Col. 21, lines 46-48). Substituting the fluorescence diagnostic in Kittrell with an infrared diagnostic and a Fourier transform infrared spectrophotometer would significantly change the operation of the device in Kittrell, making it unsatisfactory for its intended purpose. Therefore, there is no suggestion or motivation to make Examiner’s proposed modification.

Even if Kittrell did use infrared radiation, there is still no suggestion or motivation to modify Kittrell to use the mid-infrared range and the Fourier transform spectrophotometer as recited in Claim 1 since there is no suggestion that this type of diagnostic analysis would be preferable, let alone sufficient, for Kittrell’s intended purpose of identifying and removing plaque from the arterial wall.

Furthermore, Wong does not even teach the use of an optical fiber or a fiberoptic probe at all. Instead, Wong teaches that “a tissue or a cell sample is placed in a sample cell of the sample cell and holder 4 and a beam of infrared light from the source 1 which has been condensed by the lens 2, is passed through the sample in the sample cell and holder 4.” (Col. 3, lines 37-41). Wong teaches away from the use of an optical fiber and a fiberoptic probe. Therefore, there is no suggestion or incentive that would motivate one skilled in the art to modify the optic fibers in Kittrell with the spectral analysis of Wong.

Applicant respectfully submits that Claim 1 is patentable over Kittrell in view of Wong and is currently in condition for allowance. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 2-5

Since Claims 2-5 depend from Claim 1, Applicant respectfully submits that Claims 2-5 are also patentable as they contain the same limitations as Claim 1. Applicant respectfully submits that Claims 2-5 are currently in condition for allowance.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claim 6

The same arguments made above with respect to the patentability of Claim 1 are applicable to the patentability of Claim 6 as well.

Therefore, Applicant respectfully submits that Claim 6 is currently in condition for allowance.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 7-10

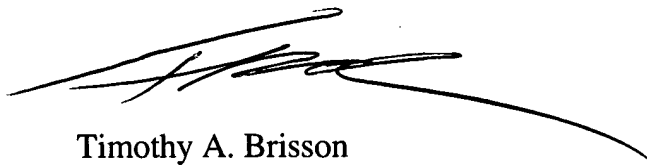
Since Claims 7-10 depend from Claim 6, Applicant respectfully submits that Claims 7-10 are also patentable as they contain the same limitations as Claim 6. Applicant respectfully submits that Claims 7-10 are currently in condition for allowance.

Reconsideration and withdrawal of this rejection is respectfully requested.

Applicant requests that this application be allowed. If the Examiner has any questions regarding this application, the Examiner may telephone the undersigned attorney at 775-586-9500.

Respectfully submitted,
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